

REMARKS/ARGUMENTS

Claim 1 is amended by this response. Claims 2-4 are canceled. Accordingly, claims 1 and 5-9 remain pending.

Embodiments in accordance with the present invention relate to semiconductor device packages having a supplemental diepad portion configured to receive a bond wire from a surface of the packaged die:

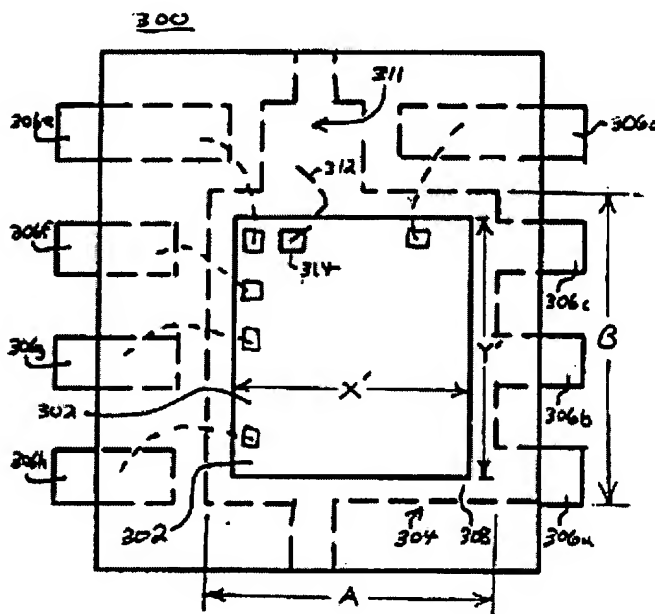


FIG. 3

diepad 308 of lead frame 304 includes a supplemental downbond portion 311 integral with and projecting from the main diepad portion into space formerly occupied by non-integral diepad leads located at the end of the package, which have now been slightly shortened in length.

[0050] Downbond wire 312 extends from PIC Gnd contact 314 to supplemental downbond portion 311 of the diepad, freeing up space on the main portion of the diepad to support PIC die 302. (Emphasis added; ¶[0049]-[0050])

Claim 1 has now been amended to be drawn to the specific embodiment shown and described in connection with Figure 3:

1. A package for a semiconductor device comprising:

a semiconductor die having a laterally conducting structure and a ground contact on an upper surface; and
a leadframe comprising,
a diepad in contact with a lower surface of the die,
a lead separated from the diepad, and
a supplemental downbond diepad portion projecting from a main portion of the diepad and configured to receive a downbond wire from the ground contact, the supplemental diepad portion positioned between an end of the package and the die, and between the lead and a second lead that is also separate from the diepad.
(Emphasis added)

In the latest office action, the Examiner objected to the language of claim 2. Claim 2 has now been canceled, and claim 1 amended to incorporate the elements of claim 2. In its currently amended form, claim 1 recites that the supplemental diepad portion is positioned between an end of the package and the die. Support for this amendment is present in the application as originally filed, at least at ¶[0049].

Also in the latest office action, the Examiner rejected claims as either anticipated or obvious in light of U.S. patent no. 5,479,050 to Pritchard et al. ("the Pritchard patent"). These claim rejections are overcome as follows.

As an initial matter, the Examiner is reminded that certain of the pending claims stand rejected as anticipated, and not merely obvious, in light of the Pritchard patent:

[t]he distinction between rejections based on 35 U.S.C. 102 and those based on 35 U.S.C. 103 should be kept in mind. Under the former, the claim is anticipated by the reference. No question of obviousness is present. In other words, for anticipation under 35 U.S.C. 102, the reference must teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present. (Emphasis added; MPEP 706.02)

Here, the pending claims specifically recite that the supplemental diepad portion is positioned between first and second leads not integral with the diepad. This feature is not taught explicitly or even impliedly by the Pritchard patent, whose raised pedestal is shown and described as being located only between leads integral with the diepad.

The Examiner is further reminded that in order to establish a prima facie case of obviousness, the prior art reference (or references when combined) must teach or suggest all the

claim limitations. (MPEP 2143). Here, the Pritchard patent also fails even to suggest each of the elements of claim 1.

As described above, one of the primary advantages conferred by the supplemental diepad portion is more efficient utilization of available space:

a supplemental downbond portion 311 integral with and projecting from the main diepad portion into space formerly occupied by non-integral diepad leads located at the end of the package, which have now been slightly shortened in length.

[0050] Downbond wire 312 extends from PIC Gnd contact 314 to supplemental downbond portion 311 of the diepad, freeing up space on the main portion of the diepad to support PIC die 302. (Emphasis added; ¶[0049]-[0050])

Enhanced space efficiency conferred by the claimed embodiments is further highlighted in the specification in connection with Figures 5 and 6 (reproduced below):

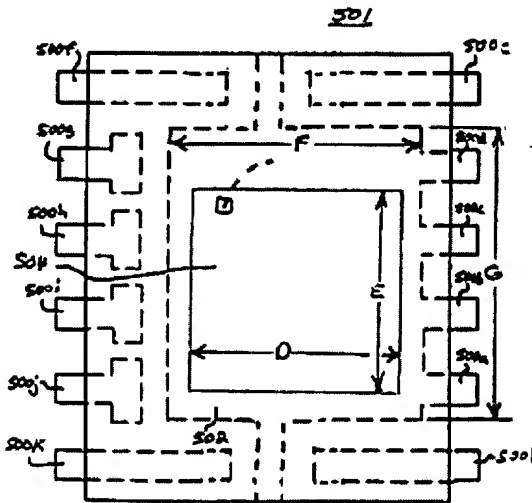


FIG. 5
(Prior Art)

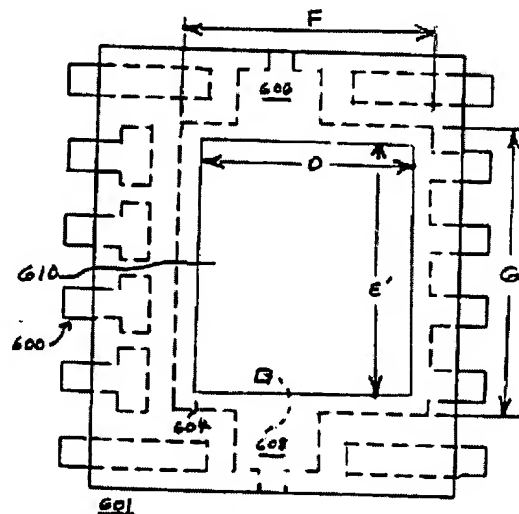


FIG. 6

[0054] Fig. 6 shows a corresponding twelve lead package 601 in accordance with an alternative embodiment of the present invention. Lead frame 600 of package 601 features diepad 604 having two supplemental downbond portions 606 and 608 positioned at either end of the package. In the package shown in Fig. 6, PIC die 610 having a length E' of 2.073 mm and a width D' of 1.47 mm (die area 3.047 mm²) is housed on a diepad 604 having the same dimensions as that of Fig. 5, resulting in an improved space efficiency of 84.5%. (Emphasis added; ¶[0054])

Again, the Pritchard patent shows and describes its pedestal feature as being located only between leads that are integral with the diepad. Such a configuration would not be expected to result in the improved space efficiency conferred by the claimed embodiments. In fact, the Pritchard patent contains no teaching, or even suggestion, that utilization of its pedestal feature would enhance the efficient utilization of available space. Instead, the Pritchard patent characterizes the pedestal feature as offering advantages in terms of ease of fabrication. (See col. 1, lines 40-44)

In view of the failure of the Pritchard patent to teach, or even suggest, a supplemental diepad portion located at the end of a package between non-integral leads, it is respectfully asserted that the pending claims cannot be considered anticipated or obvious in light of that reference. Continued rejection of the pending claims is improper and the claim rejections should be withdrawn.

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



Kent J. Tobin
Reg. No. 39,496

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: 650-326-2400
Fax: 415-576-0300
KJT:ejt

60446571 v1